

CLAIMS:

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent is

1 1. In a transport stream demultiplexor device receiving an input transport stream comprising a
2 plurality of data packets and including a filter device for removing one or more predetermined
3 packets to form a partial transport stream, a real-time data remultiplexing system comprising:
4
5 mechanism for detecting presence of a gap in said partial transport stream where predetermined
6 packets have been removed and generating a signal indicating said gap location; ✓
7
8 a mechanism for directly retrieving packet data having new content from a memory storage
9 device, and storing said retrieved packet data into a staging buffer device for queued storage
10 prior to insertion into said partial transport stream; and,
11
12 a multiplexor device responsive to said flag for pulling a queued data packet from said staging
13 AB buffer device and inserting said pulled packet into said gap as said partial transport stream is
14 being transported on a real-time basis, wherein said retrieving mechanism enables concurrent re-
15 filling of said staging buffer as queued data is pulled from said buffer.

1 2. The real-time data remultiplexing system as claimed in Claim 1, wherein said buffer device
2 comprises a first in first out (FIFO) buffer for storing said new data content.

1 ✓ 3. The real-time data remultiplexing system as claimed in Claim 1, wherein said buffer device
2 generates a signal indicating availability of new data packet for complete insertion at a gap
3 location.

1 ✓ 4. The real-time data remultiplexing system as claimed in Claim 1, wherein said staging buffer
2 device generates request signal for input to said retrieving mechanism for initiating direct
3 retrieval of new data packets from said memory storage.

1 ✓ 5. The real-time data remultiplexing system as claimed in Claim 4, further comprising a
2 processor device and memory storage device for storing new data content to be inserted, said
3 processor device generating address and size information of available new data content to be
4 stored in said buffer device.

1 ✓ 6. The real-time data remultiplexing system as claimed in Claim 5, further comprising means
2 responsive to said request signal for pulling said data packets from said memory device based on
3 said address and size information.

1 ✓ 7. The real-time data remultiplexing system as claimed in Claim 6, wherein said means
2 responsive to said request signal includes address generator device for generating addresses in
3 said memory storage where new data content is to be pulled.

1 ✓ 8. The real-time data remultiplexing system as claimed in Claim 1, further including timer
2 mechanism for periodically creating gaps in said transport stream for periodically inserting new
3 data content in said partial transport stream.

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1 9. The real-time data remultiplexing system as claimed in Claim 1, wherein said partial transport
2 stream includes data packets including audio, video and navigation data payloads.

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1 10. In a transport stream demultiplexor device receiving an input transport stream comprising a
2 plurality of data packets and including a filter device for removing one or more predetermined
3 packets to form a partial transport stream, a real-time data remultiplexing method comprising:
4 detecting presence of a gap in said partial transport stream where predetermined packets have
5 been removed and generating a signal indicating said gap location;
6
7 directly retrieving packet data having new content from a memory storage device, and storing
8 said retrieved packet data into a staging buffer device for queued storage prior to insertion into
9 said partial transport stream; and,

10 pulling a queued data packet from said buffer device in response to said indicating signal and
11 inserting said pulled packet into said gap as said partial transport stream is being transported;
12 wherein said partial transport stream having new data content is communicated on a real-time
13 basis.

1 11. The real-time data remultiplexing method as claimed in Claim 10, further including the step
2 of enabling concurrent re-filling of said staging buffer as queued data is pulled from said buffer.

1 ✓ 12. The real-time data remultiplexing method as claimed in Claim 10, further including the step
2 of generating a signal indicating availability of new data packet for complete insertion at a gap
3 location.

1 ✓ 13. The real-time data remultiplexing method as claimed in Claim 11, further including the step
2 of generating a request signal for initiating direct retrieval of new data packets from said memory
3 storage.

1 14. The real-time data remultiplexing method as claimed in Claim 13, further comprising the step
2 of: generating address and size information of available new data content to be stored in said
3 buffer device.

1 15. The real-time data remultiplexing method as claimed in Claim 14, further comprising the step
2 of: responding to said request signal for pulling data packets from a system memory device based
3 on said address and size information.

1 16. The real-time data remultiplexing method as claimed in Claim 15, wherein said step of
2 pulling data packets from a system memory device further includes the step of generating
3 addresses in said memory storage where new data content is to be pulled.

1 17. The real-time data remultiplexing method as claimed in Claim 10, further including the step
2 of periodically creating gaps in said transport stream for periodically inserting new data content
3 in said partial transport stream.

1 18. The real-time data remultiplexing method as claimed in Claim 10, wherein said partial
2 transport stream includes data packets including audio, video and navigation data payloads.